

# A Historical Perspective on Factor Index Performance across Macroeconomic Cycles

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## Introduction

Systematic factor investing has been widely adopted by both institutional and individual market participants, especially after the Global Financial Crisis of 2007-2008. This investment approach seeks to provide systematic exposure to various risk factors, such as quality, momentum, growth, value, dividend, low volatility and size. By leveraging these factors, market participants seek to achieve more diversified portfolios in order to enhance overall risk-adjusted returns over the long term.

When considering factor investing, however, it is important to recognize that empirical evidence<sup>1</sup> indicates that the performance can vary significantly depending on the prevailing economic environment. In this paper, we examine the influence of different economic regimes—characterized by levels of economic growth and inflation—on the performance of various S&P 500<sup>®</sup> Factor Indices. Our findings may offer valuable insights for market participants interested in allocating to factor investments.

<sup>1</sup> Kwon, Dohyoung. "Dynamic Factor Rotation Strategy: A Business Cycle Approach." *International Journal of Financial Studies*, Volume 10: no. 2: 46, 2022.

# Macroeconomic Framework

To examine performance across different economic regimes, we must first establish a framework to categorize them. Our framework creates four possible regimes based on two key metrics: growth and inflation. To minimize the influence of noisy data, these economic conditions must persist for a minimum of three months before they are recognized as a regime.

## The Growth Regime

The growth regime, whether rising or falling, is assessed by analyzing the month-to-month change in the U.S. Composite Leading Indicator (CLI). Developed by the Organization for Economic Co-operation and Development (OECD), the CLI is an index that provides early indications of turning points in business cycles, reflecting the fluctuations in economic activity around its long-term potential level.<sup>2</sup> This indicator is measured as an amplitude-adjusted index with a long-term average value of 100.

A positive monthly change in the CLI compared to the previous month indicates that the CLI is increasing, suggesting that the economy grew over that month. Conversely, a negative change indicates a decline in economic growth.

## The Inflation Regime

The inflation regime, categorized as either rising or falling, is determined by comparing the three-month average of the all-items U.S. Consumer Price Index (CPI) with the three-year moving average. If the three-month average exceeds the three-year average, it indicates rising inflation; if it falls below, it suggests falling inflation.

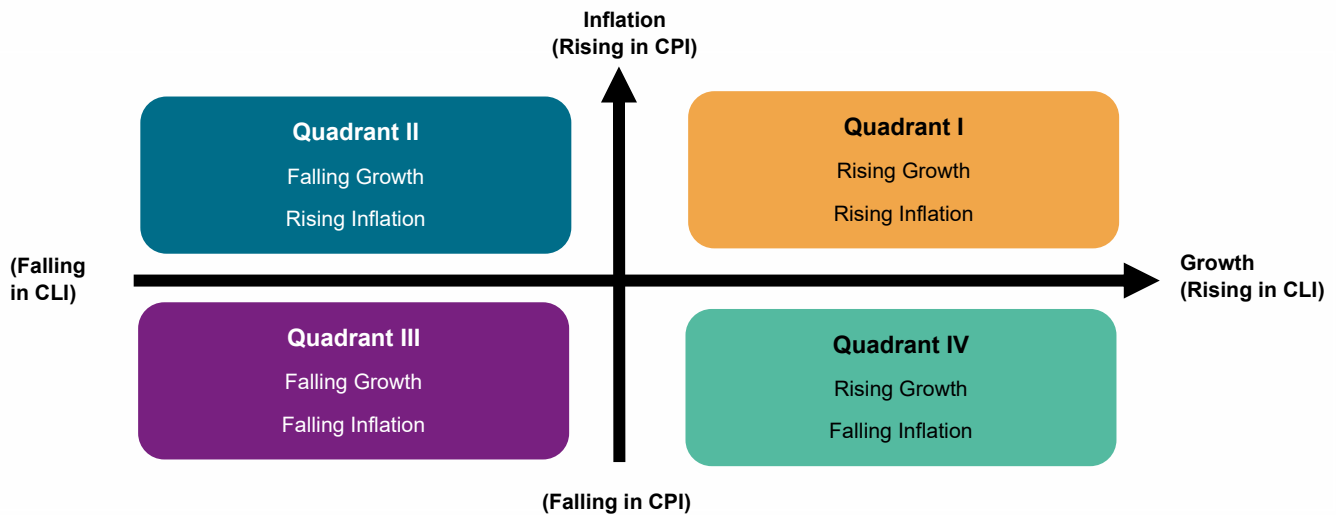
## Four Macroeconomic Regimes

These growth and inflation metrics allow us to categorize historical economic conditions into four regimes as illustrated in Exhibit 1. The four quadrants below represent each of the four regimes.

- **Quadrant I:** Rising growth and rising inflation
- **Quadrant II:** Falling growth and rising inflation
- **Quadrant III:** Falling growth and falling inflation
- **Quadrant IV:** Rising growth and falling inflation

<sup>2</sup> Please refer to <https://www.oecd.org/en/data/indicators/composite-leading-indicator-cli.html> for more details.

### Exhibit 1. Macroeconomic Regimes Defined by Growth and Inflation



Source: S&P Dow Jones Indices LLC, OECD, U.S. Bureau of Labor Statistics and Federal Reserve Bank of St. Louis. Chart is provided for illustrative purposes.

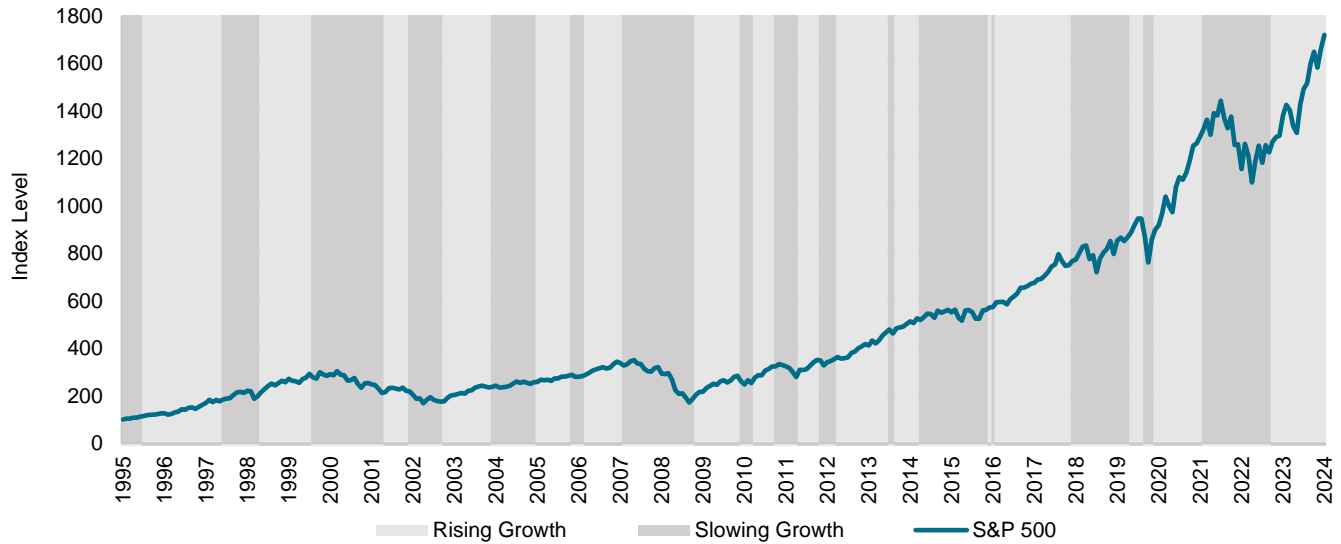
## Historic Economic Regimes and Market Returns

From June 30, 1995, to June 30, 2024, each of the 348 calendar months are categorized into an economic regime. To illustrate the relationship between market returns and economic regimes, we overlay the rebased [S&P 500](#) index level onto the economic regimes, with the S&P 500 rebased to 100 on June 30, 1995. Over this period, the S&P 500 achieved a cumulative total return of 1,620.5%, with an annualized return of 10.31% and an annualized volatility of 15.38%.

### Rising versus Falling Growth

Exhibit 2a displays the historical growth regimes alongside market returns. From June 30, 1995, to June 30, 2024, there were 184 months categorized as Rising Growth and 164 months categorized as Falling Growth. The hit ratios for positive monthly returns were 79% in the Rising Growth regime and 51% in the Falling Growth regime. This indicates that Rising Growth is more strongly correlated with positive stock returns compared to Falling Growth.

### Exhibit 2a: Historic Growth Regimes and Market Returns

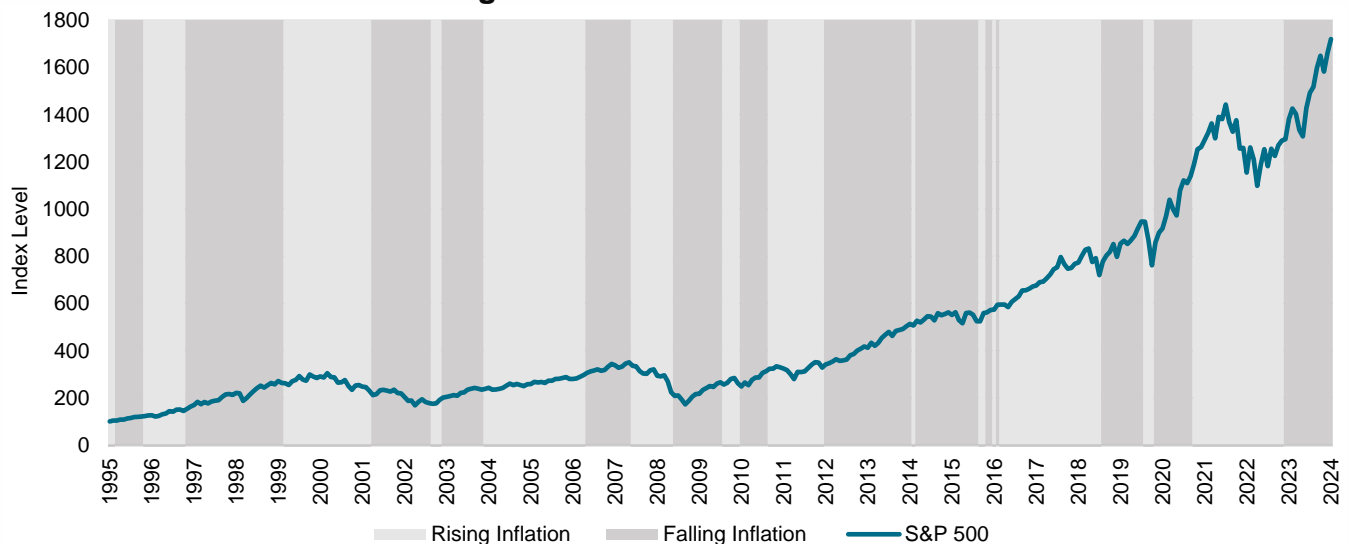


Source: S&P Dow Jones Indices LLC, OECD, U.S. Bureau of Labor Statistics and Federal Reserve Bank of St. Louis. Data from July 31, 1995, to June 30, 2024. The S&P 500 was rebased to 100 on July 31, 1995. Past performance is no guarantee of future results. Chart is provided for illustrative purposes.

## Rising versus Falling Inflation

Exhibit 2b presents the historical inflation regimes and market returns. From June 30, 1995, to June 30, 2024, there were 165 months categorized as Rising Inflation and 183 months categorized as Falling Inflation. The hit ratios for positive monthly returns were 61% and 71% in the Rising Inflation and Falling Inflation regimes, respectively. This suggests that Falling Inflation is more closely correlated with positive stock returns compared to Rising Inflation.

### Exhibit 2b: Historic Inflation Regimes and Market Returns

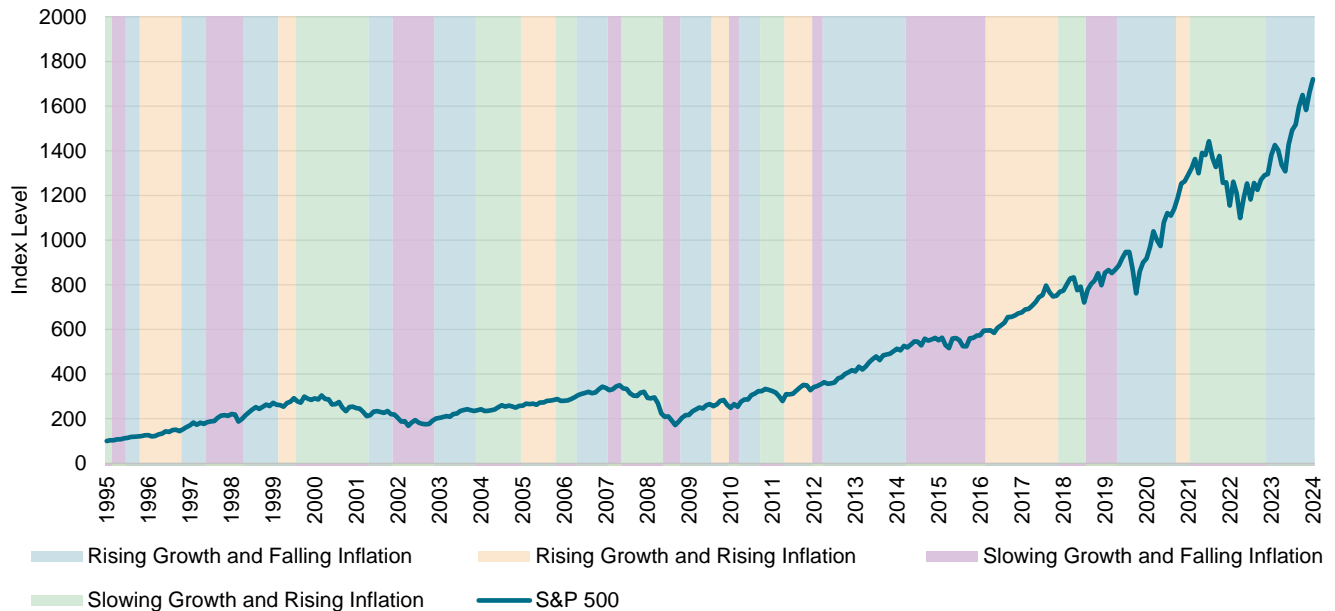


Source: S&P Dow Jones Indices LLC, OECD, U.S. Bureau of Labor Statistics and Federal Reserve Bank of St. Louis. Data from July 31, 1995, to June 30, 2024. The S&P 500 was rebased to 100 on July 31, 1995. Past performance is no guarantee of future results. Chart is provided for illustrative purposes.

## Historical Economic Regimes

As depicted in Exhibit 2c, out of the 348 calendar months, 119 months (or 34%) were classified as the Rising Growth and Falling Inflation regime, while 65 months (19%) were classified as the Rising Growth and Rising Inflation regime. The Falling Growth and Falling Inflation regime accounted for 74 months (21%), and the Falling Growth and Rising Inflation regime accounted for 90 months (26%).

**Exhibit 2c: Historic Economic Regimes and Market Returns**



Source: S&P Dow Jones Indices LLC, OECD, U.S. Bureau of Labor Statistics and Federal Reserve Bank of St. Louis. Data from July 31, 1995, to June 30, 2024. The S&P 500 was rebased to 100 on July 31, 1995. Past performance is no guarantee of future results. Chart is provided for illustrative purposes.

Exhibit 3 presents the historical risk/return characteristics of the S&P 500 across the four macroeconomic regimes. Historically, the S&P 500 exhibited the highest absolute returns and risk-adjusted returns in the Rising Growth and Falling Inflation regime, followed by the Rising Growth and Rising Inflation regime. Conversely, the S&P 500 experienced significantly lower—or even negative—returns in the Falling Growth and Falling Inflation and the Falling Growth and Rising Inflation regimes.

**Exhibit 3: S&P 500 Performance in Different Historic Economic Regimes**

Metric	Rising Growth and Falling Inflation	Rising Growth and Rising Inflation	Falling Growth and Falling Inflation	Falling Growth and Rising Inflation
Annualized Return (%)	28.44	17.86	4.46	-10.07
Annualized Volatility (%)	13.49	11.38	17.11	16.84
Risk-Adjusted Return	2.11	1.57	0.26	-0.60

Source: S&P Dow Jones Indices LLC. Data from July 31, 1995, to June 30, 2024. Index performance based on total return in USD. Past performance is no guarantee of future results. Table is provided for illustrative purposes.

# Factors

In this study, we specifically examine seven equity factors that have been extensively studied and implemented in both industry and academic settings. These factors include quality, momentum, growth, value, dividend, low volatility and size. The investment rationale for each factor is as follows.

**Quality:** Investing in high quality companies could provide stability and resilience during market downturns, as these companies tend to possess strong balance sheets, stable earnings and low levels of debt.

**Momentum:** Momentum investing involves buying stocks that have shown strong past performance, with the expectation that this trend will continue in the future. This strategy takes advantage of the trend-following behavior observed in markets.

**Growth:** Growth stocks allow for participation in the potential for above-average earnings and sales growth. These companies typically reinvest their earnings back into the business to fuel future expansion.

**Value:** Value investing focuses on buying stocks that are considered undervalued by the market. These stocks may have low price-to-earnings ratios or other fundamental indicators that suggest they are trading below their intrinsic values.

**Dividend:** Dividend investing involves selecting stocks that have high dividend yields. These stocks could provide a steady income stream and may be less volatile during market downturns.

**Low Volatility:** Low volatility investing focuses on the low volatility anomaly;<sup>3</sup> that is, low volatility securities tend to have higher returns than high volatility securities. A low volatility strategy selects stocks with historically lower price fluctuations. These stocks tend to be less sensitive to market swings, offering stability during turbulent times.

**Size:** Size investing refers to a strategy that emphasizes the relationship between a company's market cap and its expected returns. This approach is based on the premise that, historically, small-cap stocks have outperformed large-cap stocks over the long term, although they typically exhibit greater volatility.

<sup>3</sup> van Vliet, Pim; Blitz, David; van der Grient, Bart. "Is the Relation between Volatility and Expected Stock Returns Positive, Flat or Negative?" SSRN. Rochester, NY. July 1, 2011. [doi:10.2139/ssrn.1881503](https://doi.org/10.2139/ssrn.1881503)

To illustrate the performance of these factors compared to the S&P 500, we use the S&P 500 Factor Indices<sup>4</sup> as proxies (see Exhibit 4).

#### Exhibit 4: S&P 500 Factor Indices

Factor Index	Selection Metrics	Constituent Count	Weighting Scheme
S&P 500 Quality Index	Return on Equity	100	Floated Market Cap (FMC) * Quality Score
	Accruals Ratio		
	Financial Leverage Ratio		
S&P 500 Momentum Index	12-Month Risk-Adjusted Momentum	100	FMC * Momentum Score
S&P 500 Pure Growth	Three-Year Sales Growth	108*	Growth Score
	Earnings Change to Price		
	12-Month Momentum		
S&P 500 Pure Value	Sales/Price	128*	Value Score
	Book/Price		
	Earnings/Price		
S&P 500 High Dividend Index	Dividend Yield	80	Equal Weighted
S&P 500 Low Volatility Index	Inverse of the Realized Volatility	100	Inverse of Realized Volatility
S&P 500 Equal Weight Index	All Constituents Equal Weighted	500	Equal Weighted

Source: S&P Dow Jones Indices LLC. Data from July 31, 1995, to June 30, 2024. \*Constituent counts for the S&P 500 Pure Growth and S&P 500 Pure Value are based on the historic average of constituent counts. The S&P 500 Quality Index was launched July 8, 2014. The S&P 500 Momentum Index was launched Nov. 18, 2014. The S&P 500 Pure Growth was launched Dec. 16, 2005. The S&P 500 Pure Value was launched Dec. 16, 2005. The S&P 500 High Dividend Index was launched Sept. 21, 2015. The S&P 500 Low Volatility Index was launched April 4, 2011. The S&P 500 Equal Weight Index was launched Jan. 8, 2003. All data prior to such date is back-tested hypothetical data. Table is provided for illustrative purposes and reflects hypothetical historical performance. Please see the Performance Disclosure at the end of this document for more information regarding the inherent limitations associated with back-tested performance.

## Factor Performance in Historic Economic Regimes

Exhibit 5 presents the historical risk/return characteristics of each factor index across the four macroeconomic regimes. Similar to the S&P 500 (as illustrated in Exhibit 3), the S&P 500 Factor Indices historically achieved the highest absolute returns and risk-adjusted returns in the Rising Growth and Falling Inflation regime, followed by the Rising Growth and Rising Inflation regime. In contrast, all factor indices experienced significantly lower or even negative returns in the Falling Growth and Falling Inflation regime as well as the Falling Growth and Rising Inflation regime.

<sup>4</sup> Please refer to corresponding S&P DJI index methodologies for more details.

**Exhibit 5: Factor Performance in Different Historic Economic Regimes**

Category	S&P 500 Quality Index	S&P 500 Momentum Index	S&P 500 Pure Growth	S&P 500 Pure Value	S&P 500 High Dividend Index	S&P 500 Low Volatility Index	S&P 500 Equal Weight
<b>Entire Period</b>							
Annualized Return (%)	13.23	12.27	11.48	10.45	10.01	10.14	10.79
Annualized Volatility (%)	14.33	17.13	20.82	20.87	17.32	11.85	17.03
Risk-Adjusted Return	0.92	0.72	0.55	0.50	0.58	0.86	0.63
<b>Rising Growth and Falling Inflation Regime</b>							
Annualized Return (%)	28.13	31.07	36.81	35.61	25.40	16.39	31.94
Annualized Volatility (%)	12.60	14.70	18.40	21.70	18.73	11.28	16.03
Risk-Adjusted Return	2.23	2.11	2.00	1.64	1.36	1.45	1.99
<b>Rising Growth and Rising Inflation Regime</b>							
Annualized Return (%)	16.88	28.27	22.01	15.34	10.00	8.94	16.05
Annualized Volatility (%)	11.82	13.56	15.94	13.99	9.76	9.16	12.00
Risk-Adjusted Return	1.43	2.08	1.38	1.10	1.02	0.98	1.34
<b>Falling Growth and Falling Inflation Regime</b>							
Annualized Return (%)	9.31	6.66	3.48	-6.59	0.70	8.77	0.74
Annualized Volatility (%)	15.96	15.33	20.55	23.17	19.42	12.21	18.76
Risk-Adjusted Return	0.58	0.43	0.17	-0.28	0.04	0.72	0.04
<b>Falling Growth and Rising Inflation Regime</b>							
Annualized Return (%)	-3.25	-13.33	-15.31	-6.34	-0.49	4.27	-8.04
Annualized Volatility (%)	15.56	21.01	24.48	20.05	17.10	13.78	18.11
Risk-Adjusted Return	-0.21	-0.63	-0.63	-0.32	-0.03	0.31	-0.44

Source: S&P Dow Jones Indices LLC. Data from July 31, 1995, to June 30, 2024. Index performance based on total return in USD. The S&P 500 Quality Index was launched July 8, 2014. The S&P 500 Momentum Index was launched Nov. 18, 2014. The S&P 500 Pure Growth was launched Dec. 16, 2005. The S&P 500 Pure Value was launched Dec. 16, 2005. The S&P 500 High Dividend Index was launched Sept. 21, 2015. The S&P 500 Low Volatility Index was launched April 4, 2011. All data prior to such date is back-tested hypothetical data. Past performance is no guarantee of future results. Table is provided for illustrative purposes and reflects hypothetical historical performance. Please see the Performance Disclosure at the end of this document for more information regarding the inherent limitations associated with back-tested performance.

## Active Performance and Outperformance Hit Ratio in Historic Economic Regimes

In this section, we analyze the active performance of the S&P 500 Factor Indices compared to the S&P 500 across each of the economic regimes (see Exhibit 6). The factor excess return measures how much the average monthly total return of each factor index exceeds that of the S&P 500 in each regime. The outperformance hit ratio is defined as the number of outperformance months divided by the total number of months within each economic regime.



**Exhibit 6: Factor Excess Returns, Outperformance Hit Ratios and Economic Cycle**

Monthly Excess Return and Outperformance Hit Ratio versus S&P 500	Rising Growth and Falling Inflation	Rising Growth and Rising Inflation	Falling Growth and Falling Inflation	Falling Growth and Rising Inflation
S&P 500 Quality Index	-0.03% (0.54)	-0.07% (0.49)	0.36% (0.62)	0.59% (0.66)
S&P 500 Momentum Index	0.19% (0.50)	0.74% (0.62)	0.15% (0.61)	-0.24% (0.50)
S&P 500 Pure Growth	0.60% (0.63)	0.34% (0.55)	-0.02% (0.46)	-0.36% (0.44)
S&P 500 Pure Value	0.58% (0.61)	-0.15% (0.49)	-0.83% (0.41)	0.39% (0.48)
S&P 500 High Dividend Index	-0.13% (0.48)	-0.60% (0.40)	-0.27% (0.47)	0.84% (0.63)
S&P 500 Low Volatility Index	-0.86% (0.33)	-0.68% (0.35)	0.28% (0.61)	1.19% (0.64)
S&P 500 Equal Weight	0.26% (0.54)	-0.13% (0.48)	-0.28% (0.34)	0.20% (0.52)

Source: S&P Dow Jones Indices LLC. Data from July 31, 1995, to June 30, 2024. Index performance based on total return in USD. The S&P 500 Quality Index was launched July 8, 2014. The S&P 500 Momentum Index was launched Nov. 18, 2014. The S&P 500 Pure Growth was launched Dec. 16, 2005. The S&P 500 Pure Value was launched Dec. 16, 2005. The S&P 500 High Dividend Index was launched Sept. 21, 2015. The S&P 500 Low Volatility Index was launched April 4, 2011. The S&P 500 Equal Weight Index was launched Jan. 8, 2003. The S&P 500 was launched March 4, 1957. All data prior to such date is back-tested hypothetical data. Past performance is no guarantee of future results. Table is provided for illustrative purposes and reflects hypothetical historical performance. Please see the Performance Disclosure at the end of this document for more information regarding the inherent limitations associated with back-tested performance.

The [S&P 500 Quality Index](#) consistently outperformed the S&P 500 in a Falling Growth environment, achieving higher hit ratios (exceeding 0.6) regardless of inflation trends. In the other two regimes, its performance was comparable, with hit ratios of around 0.5. This behavior indicates that the quality index possesses defensive characteristics while still participating in market upside.

The [S&P 500 Momentum Index](#) outperformed with higher hit ratios in all regimes except for Falling Growth and Rising Inflation. The combination of Falling Growth and Rising Inflation may lead market participants to shift their focus from high growth stocks to more defensive stocks. This shift could lead to the underperformance of momentum stocks, which also exhibited lower hit ratios.

The [S&P 500 Pure Growth](#) demonstrated consistent outperformance in the Rising Growth regimes, achieving higher hit ratios of 0.55 or above regardless of the inflation trends, while it consistently underperformed in Falling Growth regimes, with hit ratios below 0.5, again irrespective of inflation.

The [S&P 500 Pure Value](#) exhibited significant underperformance in the Falling Growth and Falling Inflation regime, with a low hit ratio of 0.41. However, it performed comparably to, or better than, the S&P 500 in other regimes. The underperformance of value stocks in the Falling Growth and Falling Inflation regime may be attributed to their sensitivity to economic downturns.

The [S&P 500 High Dividend Index](#) demonstrated substantial outperformance in the Falling Growth and Rising Inflation regime, with a high hit ratio of 0.63, while it underperformed in

other regimes. This is expected, as market participants favor income and stability during periods of economic uncertainty.

The [S&P 500 Low Volatility Index](#) exhibited defensive characteristics, consistently outperforming in Falling Growth regimes with hit ratios exceeding 0.60. Conversely, it underperformed in Rising Growth regimes, recording hit ratios of 0.35 or lower.

The [S&P 500 Equal Weight Index](#) generally exhibited slightly positive or negative excess returns across various economic regimes, as it includes all constituents of the S&P 500. When the S&P 500 becomes too concentrated, market participants may favor a broader exposure to the market and a more equal distribution of weights across stocks.

## Top and Bottom Active Performers

In Exhibit 7, we examine the top- and bottom-performing factors based on their average monthly excess returns across different economic regimes. In a risk-on environment characterized by Rising Growth, factors such as pure growth and momentum historically showed the strongest performance, featuring consistently high hit ratios. In contrast, low volatility lagged, with low hit ratios. Conversely, during economic slowdowns or contractions characterized by Falling Growth, more defensive factors like low volatility and quality tended to perform the best, achieving consistent high hit ratios, whereas pro-cyclical factors like pure value and pure growth typically underperformed the most, with low hit ratios.

### Exhibit 7: Top and Bottom Factor Excess Returns, Hit Ratios and Economic Regimes

Factor	Rising Growth and Falling Inflation	Rising Growth and Rising Inflation	Falling Growth and Falling Inflation	Falling Growth and Rising Inflation
Top Factor (Excess Return, Outperformance Hit Ratio)	Pure Growth (0.60%, 0.63)	Momentum (0.74%, 0.62)	Quality (0.36%, 0.62)	Low Volatility (1.19%, 0.64)
Bottom Factor (Excess Return, Outperformance Hit Ratio)	Low Volatility (-0.86%, 0.33)	Low Volatility (-0.68%, 0.35)	Pure Value (-0.83%, 0.41)	Pure Growth (-0.36%, 0.44)

Source: S&P Dow Jones Indices LLC. Data from July 31, 1995, to June 30, 2024. Index performance based on total return in USD. The S&P 500 Quality Index was launched July 8, 2014. The S&P 500 Pure Growth was launched Dec. 16, 2005. The S&P 500 Pure Value was launched Dec. 16, 2005. The S&P 500 Momentum Index was launched Nov. 18, 2014. The S&P 500 Low Volatility Index was launched April 4, 2011. The S&P 500 High Dividend Index was launched Sept. 21, 2015. All data prior to such date is back-tested hypothetical data. Past performance is no guarantee of future results. Table is provided for illustrative purposes and reflects hypothetical historical performance. Please see the Performance Disclosure linked at the end of this post for more information regarding the inherent limitations associated with back-tested performance.

# Implications and Conclusions

The shifting economic landscape can pose challenges for investors. This prompted our investigation into the performance of the S&P 500 Factor Indices across various macroeconomic regimes. Our findings indicate that factor performance has often been closely linked to these economic conditions.

The insights presented in this paper have shown which factors have historically excelled or struggled in specific environments, showing the factors that may have been able to aid in navigating the uncertainties related to changes in inflation and growth. Additionally, the observed divergence in factor performance across different macroeconomic conditions could present opportunities for more strategic factor allocation.

## Performance Disclosure/Back-Tested Data

The S&P 500 Quality Index was launched July 8, 2014. The S&P 500 Momentum Index was launched November 18, 2014. The S&P 500 Pure Growth was launched December 16, 2005. The S&P 500 Pure Value Index was launched December 16, 2005. The S&P 500 High Dividend Index was launched September 21, 2015. The S&P 500 Low Volatility Index was launched April 4, 2011. The S&P 500 Equal Weight Index was launched January 8, 2003. The S&P 500 was launched March 4, 1957. All information presented prior to an index's Launch Date is hypothetical (back-tested), not actual performance. The back-test calculations are based on the same methodology that was in effect on the index Launch Date. However, when creating back-tested history for periods of market anomalies or other periods that do not reflect the general current market environment, index methodology rules may be relaxed to capture a large enough universe of securities to simulate the target market the index is designed to measure or strategy the index is designed to capture. For example, market capitalization and liquidity thresholds may be reduced. Complete index methodology details are available at [www.spglobal.com/spdji](http://www.spglobal.com/spdji). Past performance of the Index is not an indication of future results. Back-tested performance reflects application of an index methodology and selection of index constituents with the benefit of hindsight and knowledge of factors that may have positively affected its performance, cannot account for all financial risk that may affect results and may be considered to reflect survivor/look ahead bias. Actual returns may differ significantly from, and be lower than, back-tested returns. Past performance is not an indication or guarantee of future results. Please refer to the methodology for the Index for more details about the index, including the manner in which it is rebalanced, the timing of such rebalancing, criteria for additions and deletions, as well as all index calculations. Back-tested performance is for use with institutions only; not for use with retail investors.

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